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Sitting on a hot energy source

By Lawrence Molloy
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The United States is frequently embarrassed over its energy policy. The most recent occurrence was in the area of geothermal energy. Last fall, the Senate's Energy and Natural Resource Committee sat through one of the best presentations on our nation's geothermal energy potential. It was delivered by the president of Iceland.

He spoke to the expansion of geothermal energy in the Western United States. That expansion is coming to Washington State. Our location on the edge of a regional "hot zone," along with the accelerating interest in all forms of renewable energy, means that developers soon will be knocking at our doors.

Underground windmills, heat mining and enhanced geothermal systems are all names and references for geothermal energy. Instead of digging or drilling for gas or coal to burn and generate steam in order to turn a turbine, you tap the Earth's natural heat to create energy. It works. And, it works today.

Power engineers consider it a mature technology — a demonstrated one — and most of the technology, though 20 years old, is available today off the shelf. Utilities show keen interest in it because it is steady, not intermittent like wind and solar. However, like those two energy sources, geothermal is renewable. It has high initial costs, roughly two-thirds coming from drilling. But, once built, it has no fuel costs.

The hot zone of California, Nevada (the Saudi Arabia of geothermal), Idaho and Oregon could produce tens of thousands of megawatts along the spine of the Sierra Nevadas and Cascades. Washington State sits on the edge of this hot zone. The 34 thermal hot springs throughout the state are just the surface of our potential.

Yet, Washington State has zero megawatts of geothermal. "It also has zero planned, proposed or within the plant-approval process, even though we have excellent potential," laments Susan Petty, one of the world's leading geothermal reservoir engineers.

Petty, who is based in Seattle, points out there is no current hard data on the exact nature of the state's geothermal resources. But, working off 25-year-old geologic studies, it's reasonable to say we are among the top-10 states.

Petty also notes Washington State is unprepared to respond or assist if a geothermal development permit were submitted today. This is a major oversight that must be addressed. Though nothing firm has materialized, there has been at least one early expression of interest.

Gov. Christine Gregoire is committed to renewable energy, but faced strong opposition over the Horizon wind farm outside of Ellensburg because of its size and profile. That would not be an issue with geothermal: It has the smallest surface footprint among renewable forms of energy; less space than the Seattle Center grounds would be needed to produce the energy equivalent of 65 wind turbines along the ridgeline in Kittitas County.

Geothermal in Washington State also would generate solid, respected jobs in parts of the state that are seeking to expand their employment bases.

Yet, we must not mislead ourselves into thinking geothermal is a clean and limitless energy (we did that with nuclear power in the 1950s). There are impacts. Water issues are the biggest concern, especially if developers work on the cheap and do not have the proper recovery technology. Carbon dioxide is produced, but the impacts are one-fifteenth to one-thirtieth those of natural gas, the cleanest of the abundant fuel sources currently in our portfolio.

If geothermal is done correctly and respectfully — no development on sacred sites or in wilderness areas and national parks — we can bring hundreds of megawatts online in Washington State. The discussion needs to begin now with the tribes, utilities, environmentalists and state agencies.

It is time for Washington state to recognize the great potential for what is being called "the forgotten renewable." The underground windmills are waiting.

Engineer Lawrence Molloy has worked on clean energy technologies around the Pacific Rim for more than a decade. He was a member of the Port of Seattle Commission from 2001 to 2005.